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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/675,700

Applicant(s)

STARR ET AL.

Examiner

BARBARA BURGESS

Art Unit

2457

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2012.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-7 and 21-33 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-7, 21-33 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.

- 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 4) ☐ Other: ____.

DETAILED ACTION

This Office Action is in response to Amendment filed 11-7-12. Claims 1-7, 21-33 are presented for further examination.

Claim Rejections - 35 USC § 112

1. The following is a quotation of 35 U.S.C. 112(a):

(a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), first paragraph:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 21, 28 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

3. It is unclear how Specification, page 11, lines 18-21 discloses "wherein said data corresponds to a layer higher than said transport layer". Please clarify or amend claims accordingly.

4. It is unclear how Specification, page 11, lines 1-5, 18-21 discloses "associating...said TCP connection with said file cache". Please clarify or amend claims accordingly.

5. The following is a quotation of 35 U.S.C. 112(b):

(B) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 21, 28 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.
7. Claims 1, 21, 28 recite the limitation "said memory". There is insufficient antecedent basis for this limitation in the claim. Examiner suggests "said interface memory" as correction.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 4, 6-7, 21, 23-24, 26-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elzur (US Patent 6,427,169 B1) in view of Lotito et al. (hereinafter "Lot", US Patent 4,625,081) and further view of Muller et al. (hereinafter "Muller", US Patent 6,453,360 B1).

As per claims 1, 21, Elzur discloses an interface device for a computer having a file system that controls a file cache, the interface device comprising:

- interface hardware configured to process a transport layer header of a packet received via a first physical network port, and to separate said transport layer header from data of said packet, wherein said data corresponds to a layer higher than said transport layer (column 1, lines 18-21, column 2, lines 55-67, column 3, lines 1-3, 46-51, 57-67, column 4, lines 1, 6-11, column 5, lines 63-66; A network controller, at the physical layer, establishes physical communication with the network to send and receive packets to and from the network);
- An interface memory storing a TCP connection established by the computer and handled by said device (column 4, lines 14-17, 23-25, 34-36, 61-67, column 5, lines 63-66, column 7, lines 1-5, ; The network controller includes hardware such as a receive path. The receive path includes a memory that stores flow tuples that identify characteristics of a particular flow associated with a TCP connection);
- An interface mechanism for associating said packet with said TCP connection (column 4, lines 14-17, 23-25, 34-36, 61-67, column 5, lines 14-24).

Elzur does not explicitly disclose:

- to send data from said packet via a second physical network port to a storage unit, thereby avoiding the computer.

However in an analogous art, Lot discloses a packet switcher testing a physical address input port for availability to receive a packet of data. If available, the packet is transferred. The header of the packet determines process identification. Some data is transferred between user processes and buffers in the device, controller, or handler. However, a user process can initiate a transfer of data between source and destination without passing the data through the user's process. For example, a transfer can go from a display record on disk to an operator station with no intervention from user and with direct routing of the data through the system. No processing occurs (column 17, lines 24-27, column 45, lines 20-34, column 67, lines 49-55, column 68, lines 5-17, column 114, lines 37-47).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Lot's send data via a second physical network port to a storage unit, thereby avoiding the computer in Elzur's device enabling data to be transferred without processing.

Elzur, in view of Lot, does not explicitly disclose:

- said memory adapted to store said data in said file cache;
- said TCP connection with said file cache.

However, the use and advantages for using such a file cache is well-known to one of ordinary skill in the art as evidenced by Muller (column 56, lines 20-30, column 57, lines 55-65, column 58, lines 26-30, column 59, lines 60-65).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's file cache in Elzur's device in order to store non-assembled packets.

As per claim 4, Elzur discloses the interface device of claim 1, further comprising a Fibre Channel controller connectable to the storage unit (column 3, lines 46-60).

As per claims 6, 26, Elzur, in view of Lot, does not explicitly disclose the network interface device of claim 1, wherein said file cache is adapted to store said data as a file stream, and the interface device is adapted to send said data as file blocks for storage on the storage unit.

However, the use and advantages for using such file cache to store and interface device to send data as blocks is well-known to one of ordinary skill in the art as evidenced by Muller (column 15, lines 19-25, column 16, lines 57-61, column 21, lines 27-34, 40-41, column 24, lines 29-38).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's file cache in Elzur's device in order to store non-assembled packets.

As per claims 7, 27, Elzur, in view of Lot, does not explicitly disclose wherein said data is mapped from a logical file format of said file cache to a physical block format of the storage unit.

However, the use and advantages for mapping is well-known to one of ordinary skill in the art as evidenced by Muller (column 50, lines 49-52).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's mapping in Elzur's device to lessen the flow key into a smaller range of values.

As per claim 23, Elzur discloses the interface of claim 21, further comprising a plurality of network ports (column 4, lines 40-45).

As per claim 24, Elzur discloses a Fibre Channel controller connectable to the storage unit (column 1, lines 18-20, column 3, lines 46-52).

As per claim 28, Elzur discloses a method for operating an interface device for a computer having a file system that controls a file cache, the interface device connectable to a network and a storage unit, the method comprising:

- Receiving, by the interface device from the network, a packet containing data and a Transmission Control Protocol (TCP) header (column 1, lines 18-21, column 2, lines 55-67, column 3, lines 1-3, 46-51, 57-67, column 4, lines 1, 6-11, column 5, lines 63-66);

- A memory storing a TCP connection established by the computer and handled by said device (column 4, lines 14-17, 23-25, 34-36, 61-67, column 5, lines 63-66, column 7, lines 1-5);
- Processing, by the interface device, the TCP header (column 2, lines 64-67, column 4, lines 14-17, 23-25, 34-36, 61-67);
- Associating, by the interface device, the packet with the TCP connection (column 4, lines 14-17, 23-25, 34-36, 61-67).

Elzur does not explicitly disclose:

- to send data from said packet via a second physical network port to a storage unit, thereby avoiding the computer.

However in an analogous art, Lot discloses a packet switcher testing a physical address input port for availability to receive a packet of data. If available, the packet is transferred. The header of the packet determines process identification. Some data is transferred between user processes and buffers in the device, controller, or handler. However, a user process can initiate a transfer of data between source and destination without passing the data through the user's process. For example, a transfer can go from a display record on disk to an operator station with no intervention from user and with direct routing of the data through the system. No processing occurs (column 17, lines 24-27, column 45, lines 20-34, column 67, lines 49-55, column 68, lines 5-17, column 114, lines 37-47).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Lot's send data via a second physical

network port to a storage unit, thereby avoiding the computer in Elzur's device enabling data to be transferred without processing.

Elzur, in view of Lot, does not explicitly disclose:

- storing, on the interface device, the data from the packet in the file cache.

However, the use and advantages for using such a file cache is well-known to one of ordinary skill in the art as evidenced by Muller (column 56, lines 20-30, column 57, lines 55-65, column 58, lines 26-30, column 59, lines 60-65).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's file cache in Elzur's device in order to store non-assembled packets.

As per claim 29, Elzur discloses the method of claim 28, further comprising creating, by the computer, the information regarding the TCP connection (column 4, lines 35-50).

As per claim 30, Elzur discloses the method of claim 28, wherein the packet is received via the port and the data is sent to the storage unit via the port (column 4, lines 43-45, column 6, lines 49-50, column 11, lines 28-30).

As per claim 31, Elzur discloses the method of claim 28, wherein the interface device includes first and second network ports, and the packet is received via the first port and the data is sent to the storage unit via the second port (column 4, lines 43-45, column 6, lines 49-50, column 11, lines 28-30).

As per claim 32, Elzur, in view of Lot, does not explicitly disclose the method of claim 28, wherein said file cache is adapted to store said data as a file stream, and the interface device is adapted to send said data as file blocks for storage on the storage unit.

However, the use and advantages for using such file cache to store and interface device to send data as blocks is well-known to one of ordinary skill in the art as evidenced by Muller (column 15, lines 19-25, column 16, lines 57-61, column 21, lines 27-34, 40-41, column 24, lines 29-38).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's file cache in Elzur's device in order to store non-assembled packets.

As per claim 33, Elzur discloses the method of claim 28, further comprising adding a network protocol header to the data for sending the data to the storage unit (column 7, lines 35-49).

10. Claims 2, 5, 22, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elzur (US Patent 6,427,169 B1) in view of Lotito et al. (hereinafter "Lot", US Patent 4,625,081) and further in view of Day et al. (hereinafter "Day", US Patent 6065096).

As per claims 2 and 22, Elzur, in view of Lot, discloses the interface device of claims 1 and 21.

Elzur, in view of Lot, does not explicitly disclose the interface further comprising a SCSI controller connectable to the storage unit.

However, Day discloses SCSI interface channels attached to disk drives (column 2, lines 40-54, column 5, lines 1-25).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate in Day's interface comprising a SCSI controller in Elzur's device in order to provide for a simple, lower cost RAID controller architecture to enable lower cost and complexity associated with high performance and high reliability storage subsystems.

As per claims 5 and 25, Elzur, in view of Lot, discloses the network interface device of claims 1 and 21.

Elzur, in view of Lot, does not explicitly disclose the interface further comprising a RAID controller connectable to the storage unit.

However, Day discloses a RAID controller that integrates onto a single integrated circuit of a general-purpose processor (column 2, lines 11-25, 55-67).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Day's interface comprising a RAID controller in Elzur's device allowing the disk interface connections and protocols to be more flexibly selected but at the cost of less integration within the circuit.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elzur (US Patent 6,427,169 B1) in view of Lotito et al. (hereinafter "Lot", US Patent 4,625,081) and further in view of Cox et al. (hereinafter "Cox", US Patent 6,172,981 B1).

As per claim 3, Elzur, in view of Lot, does not explicitly disclose the interface device of claim 1, wherein said first network port is connected to a first network and said second network port is connected to a second network.

However, in an analogous art, Cox teaches a switch that provides connection between different networks. The switch transmits data bits received from the source port directly to the destination port. It reads the network layer protocol header in a data frame, and if destined for a station on a different LAN segment, it transmits to the destination end station (Abstract, column 1, lines 63-67, column 2, lines 1-5, 15-20, column 4, lines 3-8, column 5, lines 3-12).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Cox's ports on first and second networks in Elzur's device avoiding and eliminating delays by forwarding of data without storing the entire frame.

Response to Arguments

The Office notes the following argument(s):

- (a) Regarding claims 1, 21, 28, there appears to be no mention of a "file system" or "file cache" in either Elzur or Lotito.
- (b) Muller does not teach or suggest "an interface memory...adapted to store said data in said file cache" as recited in claim 1.
- (c) Regarding claim 29, Elzur does not disclose creating anything by the computer.
- (d) Regarding claim 30, none of the citation of Elzur discloses the port as a physical port.
- (e) Regarding claim 31, None of the citations of Elzur disclose first and second physical network ports.

In response to:

- (a) Applicant's arguments have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.
- (b) Applicant's arguments filed have been fully considered but they are not persuasive.

Muller teaches a Network File System (NFS) application, data portion may include NFS headers related to individual NFS datagrams. A datagram is defined as a collection of data sent from one entity to another and may comprise data transmitted in multiple packets. The Network Interface Circuit (NIC) uses header information to process the packet as well as NFS file handles. The NIC has a processor and memory to process and store packet information. Buffers the size of a memory page are used to assemble data (column 11, lines 52-59, column 12, lines 15-20, column 15, lines 19-25, column

16, lines 59-61, column 23, lines 18-30, column 26, lines 15-20, column 54, lines 32-43, column 56, lines 20-30, column 57, lines 55-65, column 58, lines 26-30, column 59, lines 60-65).

Therefore, Muller undoubtedly discloses "an interface memory...adapted to store said data in said file cache" as recited in claim 1.

(c) Elzur teaches the receive path parses the header of each packet to extract characteristics of the packet. The packets may be from different flows and is stored in a memory. Each flow tuple uniquely identifies a flow pared by the receive path. At least one of the flow tuples may be associated with a TCP. This information is used to aid in transporting the packet to its proper destination (column 4, lines 31-51).

Therefore, Elzur indeed discloses "creating, by the computer, information regarding the TCP connection".

(d)-(e) Elzur teaches packets containing destination and source port addresses. These port addresses indicates the specific source and destination computer systems that send and receive packets on the network (column 1, lines 51-67, column 2, lines 1-2, column 4, lines 39-44).

Therefore, Elzur absolutely discloses first and second physical network ports.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA BURGESS whose telephone number is (571)272-3996. The examiner can normally be reached on M-F (8:00am-4:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Barbara N Burgess/
Examiner, Art Unit 2457

Barbara N Burgess
Primary Examiner
Art Unit 2457

February 6, 2013

/Barbara N Burgess/
Primary Examiner, Art Unit 2457